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Editor - Captain L. B. Marshall, MC, USN

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Obesity

Obesity constitutes an abnormal state of health which has come to be recognized as such a serious cause of premature disability that the Bureau considers it essential for medical officers to take positive measures to reduce the incidence thereof in members of the naval service

It has been clearly shown that the mortality rate increases with the degree of overweight and the highest mortality rate is found in those individuals whose abdominal girth exceeds that of the expanded chest, particularly in the middle-age group. Insurance statistics reveal that the mortality rate in overweight people is 150% of that expected in normal weight individuals, and in the age group 20 to 29 the mortality rate is as high as 180% of the expected rate.

Dr. Dublin of the Metropolitan Life Insurance Company states, "Unmistakably, the excess mortality of these overweights is largely accounted for by the high death rates from degenerative diseases of the heart, arteries, and kidneys, diabetes and certain disorders of the liver, biliary tract and bowels."

The mortality from cardiovascular-renal diseases in overweight persons is approximately one and one-half times that expected on the basis of standard experience. The following list shows the relative mortality rates from other diseases in the obese individual:

cerebral hemorrhage	60% higher
chronic diseases of the heart (including coronary artery diseases and angina pectoris)	40% higher
chronic nephritis	90% higher
diabetes	4 times the expected rate

In addition, an increased number of sick days and premature onset of physical impairment results from these degenerative diseases.

In the naval service obesity creates a number of problems resulting from such factors as increased sick days, administrative problems, and premature separation from the active list as a result of the increased incidence of disability in the overweight individual.

Average weight, frequently termed standard weight, must not be considered normal weight. Normal weight, or ideal weight, is the weight of lowest mortality or the weight of maximum life expectancy. In all weight charts based on actuarial tables the so-called normal weights are only the average weights of a large number of ambulatory persons including the thin and fat, the young and old, the well and sick. The studies of Doctors Dublin, Marks, and others of the Metropolitan Life Insurance Company set up the "Maximum Longevity Tables," based on the life history of a large group of insurance risks. This study revealed the

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important fact that those persons who do not at any time thereafter exceed the body weight which they attained at the age of 25 are those who attained maximum longevity.

To approach the question of "what is my ideal weight?" from a different angle we might consider the studies of Thomson. He reported that individuals weighing less than 2.0 pounds per inch of height should be considered lightweights, those from 2.0 to 2.4 pounds per inch, medium weights, and those weighing over 2.4 pounds per inch of height, heavyweights. Those individuals in the light and medium groups have the best life expectancy. The group designated by Thomson as heavyweights are the poor-risk group because of its increased mortality rate. This latter group includes those persons who exceed by 20 pounds or more the standard weight as set forth in the weight tables of the Manual of the Medical Department of the Navy.

It has been the opinion of the medical profession for many years that the association of obesity and hypertension is more than a mere coincidence. The statistics compiled on hypertension by the majority of investigators reveal the significance of this association. Of 3,343 individuals employed at the Metropolitan Life Insurance Company and observed over a period of 12 years, an elevation of the diastolic pressure was noted most frequently in the above-average weight group. Among 3,528 employees of the Fidelity Mutual Life Insurance Company observed over a 5-year period, 25% of the overweight group showed an elevated diastolic pressure, whereas only 2% of the group of those not overweight showed an increase in diastolic pressure. In reviewing completed Standard Forms 88 in the Bureau, it has been noted that the majority of those individuals who are overweight present hypertension or other conditions as arthritis of major joints, diabetes, or coronary artery disease. These diseases tend to be cause for frequent admissions to the sick list, lost man-days from the job, and eventual premature separation from the active list because of physical disability. In the case of officers who are being recalled to active duty, overweight increases the risk of subsequent separation from the active list by reason of physical disability as shown by the experience of the Physical Review Council in reviewing Physical Evaluation Board proceedings.

The experiences of the Metropolitan Life Insurance Company, according to Dr. Dublin, reveal that reduction of weight has resulted in a decreased mortality rate as the result of lowering of the incidence of the degenerative diseases. This is perhaps the best evidence produced to date to show that there is long-range benefit from weight reduction. Furthermore, the experience of the Bureau from review of thousands of medical records shows that a reduction of blood pressure tends to accompany or follow a reduction in weight. In the case of overweight individuals with abnormal glucose tolerance tests, according to Dillon, reduction of weight resulted in return to normal of the glucose tolerance curve in 77%

of the cases. Overweight predisposes to diabetes and continued overweight shortens the life expectancy of the diabetic. Reduction of weight decreases the disposition to diabetes and lengthens the life span.

Certainly as matters stand today, weight reduction in the overweight individual appears to be one of the major practical approaches to the problem of preventing or retarding the degenerative diseases of middle and later life. It is well known that these diseases far outrank all other diseases as a cause of death.

Annual physical examinations are in progress at the present time, and the instructions require that a completed Standard Form 88 be forwarded to the Bureau in all cases found to be 20 pounds or more over the standard weight, as set forth in the Manual of the Medical Department of the Navy. This requirement is intended to indoctrinate medical officers in taking cognizance of the presence of overweight. In such instances it is also required that the examiner indicate the measures recommended to the examinee for correction of the overweight, and this is intended to stimulate special consideration of the problem involved in order to insure that constructive action is taken on the findings and to encourage overweight individuals to improve their dietary and living habits. (PQ & MR Div., BuMed)

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Emotional Satisfaction Needed When Reducing

Fat people and their doctors need an Einstein or a Planck to give them the right formula for successful weight reduction. The successful formula would balance intake and output not only of food and physical energy but also of emotional satisfactions.

"If one takes away smoking, food and alcohol from a hard-working man who unhappily receives little genuine satisfaction from his job, no matter how important, or from his family, no matter how well meaning or grand in appearance, one has the obligation to put something constructive in its place."

If appropriate activities that take the place of eating in giving satisfaction are not available, the "patient and his entire family and business associates are put under stress." Many overweight patients have as little ability to abstain from overeating as alcoholics have to refrain from drinking. Harassing and scolding the overweight person will not cure him of his obesity any more than such measures would cure a patient of pneumonia. (Science News Letter, Nov. 8, 1952).

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The British National Health Service

The National Health Program is based on three pillars: the hospital and specialist service, the public health service, and the general practitioner service.

When the scheme was first considered shortly after the end of World War II, money appeared to be plentiful in England, there was practically no unemployment, and it was determined that no one should be deprived of medical care because he could not afford it. The general body of public opinion was in favor of the scheme. The British Hospitals Association representing the voluntary hospitals put up some opposition to nationalization of their hospitals, but the only real opposition to the scheme, and that was not on the basic principles, was from the British Medical Association on behalf of the profession. They concentrated on the need for safeguarding professional freedom; for free choice of doctor; for no interference by a government official between a doctor and his patient; for the confidentiality of medical records; for no interference with the liberty of movement of general practitioners; for payment of general practitioners by capitation and not by salary; for insuring strict justice in disciplinary proceedings; for professional advice on the running of the service from doctors who were not civil servants; and for the clarification of certain points arising from the proposal to forbid the sale and purchase of practices.

By the spring of 1948 the concessions made by the Minister of Health to meet the views of the profession were known and the British Medical Association arranged a plebiscite. The result showed that though 52% of those voting were unwilling to enter the service, 12,799 or 48% were willing to do so. With this substantial number willing to join, the Association decided that collective opposition was out of the question and that it should cooperate with the Minister in trying to make the service workable——pressing for satisfactory terms and conditions of service for all sections of the profession, securing satisfactory regulations, and to respond willingly to the Minister's invitation to assist him in framing the new Amending Act.

The author sets forth categorically the following points: (1) The main principle of a comprehensive service of medical care which is available to all, and is free at the time the service is needed, is accepted by all political parties and by the representatives of the profession. (2) The great benefit of the scheme is that every sick person, man, woman, or child, has direct access to the general practitioner of his choice, and as payment is by capitation, the doctor has a financial stimulus to support preventive measures. (3) The doctor who desires a specialist opinion on any of his cases can receive it even if it involves the specialist visiting the patient's home. (4) the ex-voluntary hospitals have been saved from bankruptcy, and the ex-municipal hospitals have had their specialist

staffs strengthened. Two formerly competing hospital services have been brought under the same administration. (5) All hospital extensions and developments are coordinated and made to fit into a regional plan. It is the specific duty of the Ministry of Health, acting through its hospital boards, to insure an adequate and efficient hospital service everywhere as soon as possible; and, in the meantime, to make the best use of available facilities. (6) The financial rewards of the hospital specialist and trainee specialist are now such that no one of the necessary quality need be diverted from his course by financial reasons. (7) The development of the hospital service is, however, hampered by the present national financial stringency and by the shortage of nurses. (8) There is still a substantial amount of private consulting and operative practice. Some are surprised at this, but Great Britain has had a free education system for 80 years and there are still many private schools. (9) The development of group practice and health centers is an agreed policy incorporated in an Act of Parliament. Progress is, however, very slow owing to financial limitations. (10) Some progress is being made toward the better distribution of general practitioners. (11) Most general practitioners are dissatisfied with their incomes. The satisfied exceptions are those with large lists of patients in industrial towns, usually where hospital services are good. (12) The present maximum number of patients which a practitioner may have on his list is 4,000 or 6,200 if he has an assistant. This is too high for the doctor to be able to devote much time to the education of his patients on health matters but the average number of patients on doctors' lists is below 2,500. It is hoped that the maximum will eventually be reduced. (13) The former private practices of general practitioners have been substantially reduced. (14) As a class, public health officers are unhappy. They believe that with the loss of their hospitals an important and interesting part of their work has gone. They are also dissatisfied with their pay, particularly in the junior grades. (15) As a result, the number of public health graduate students is diminishing. (16) The general dental service has proved so attractive to dentists that the priority dental services are suffering. (17) The cost of the dental, ophthalmic, and pharmaceutical services has led to curtailment of money for the hospital and general practitioner services. This is in process of being remedied. (18) The administrative arrangements are complex and in some respects unnecessarily costly. Too much time has to be spent on liaison and committee work. (19) The destitute sick no longer have a special medical, including hospital, service devised especially for them as everyone is now entitled to free medical treatment. The result is that they have to take their place in the ordinary line, and in the case of the chronic sick, in need of hospital care, the service has not proved advantageous. (20) When comprehensive health centers, including group practice, become available, there will be a considerable step forward in the integration of curative and

preventive medicine. (21) The National Blood Transfusion Service and the Public Health Laboratory Service are first class. (Am. J. Pub. Health, Oct. 1952, Sir Allen Daley)

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Treatment of Uncomplicated Cases of Gonococcal Urethritis

A study of present treatment of uncomplicated cases of urethritis caused by Neisseria gonorrhoeae reveals a wide difference in treatment schedules in various ships and stations. The schedules vary from a single dose of 300,000 units of penicillin to multiple doses of 600,000 units. Some stations are using as high a dosage as 4,200,000 units of penicillin for uncomplicated cases of gonorrhea in the acute state. The gonococcus is extremely sensitive to penicillin, and such massive doses are totally unnecessary. Some ships and stations are hospitalizing uncomplicated cases of urethritis caused by gonorrhea, although ambulatory treatment is the preferred method. Also some ships and stations are using medical restriction for periods up to 6 weeks in cases of uncomplicated gonorrhea which have been treated and cured. This is excess of any medical justification and is rightly interpreted by the patient as a form of punishment. Any punitive measure applied to a patient tends to cause concealment or self-treatment of disease. Because concealment, self-treatment, or unofficial treatment is detrimental to the control of venereal disease, all punitive measures except for concealment should be discontinued in accordance with current directive.

Recommended Treatment

Uncomplicated gonococcic urethritis should be treated with penicillin on a duty status; only complicated cases should be hospitalized. Abstinence from sexual contact, alcohol, and local trauma should be insisted upon during the period of infectivity and treatment.

The initial treatment of choice for uncomplicated gonorrhea is a single intramuscular injection of 300,000 units of crystalline procaine penicillin G in aqueous suspension, or in oil plus 2% aluminum monostearate.

On the third post-treatment day, a re-examination of the patient is indicated. If a urethral discharge is still present and N. gonorrhoeae can be demonstrated, either by smear or culture, the patient should be treated again utilizing procaine penicillin G in 300,000 unit dosage for a total dosage of 900,000 units over a period of 3 days.

If a patient is found to have negative laboratory findings 72 hours after completion of treatment, and has had an opportunity for re-exposure with subsequent findings at a later date of gonococci in urethral discharge, then such cases should be considered as "reinfection" and not "resistance to therapy."

Those patients with gonorrhea who also have lesions suggestive of syphilis should not be given penicillin until syphilis has been ruled out by darkfield examinations on 3 consecutive days, as well as serologic tests for syphilis. A history of recent use of penicillin would warrant further darkfield examinations. Treatment with sulfadiazine (4 gm. for the first dose, to be followed by 1 gm. every 6 hours for 5 days) may be instituted in such cases if desired, pending the results of laboratory tests for syphilis.

In the case where a patient with gonococcal urethritis gives a history of penicillin sensitivity, penicillin should be substituted by either sulfadiazine in the above dosage, or terramycin (2 1-gm. doses administered orally at 6-hour interval), or streptomycin (total dose of 4 gm. in 2 days).

Women who have had sexual contact with known cases of gonorrhea should be given penicillin treatment as recommended above, regardless of absence of symptoms or failure to demonstrate the gonococci in smears and cultures.

Although strains of the gonococcus have been found to vary slightly in their sensitivity to penicillin (between .01 and .03 units per ml.) there is no evidence of penicillin-resistant strains of this organism. It is unlikely, therefore, that uncomplicated gonorrhea will fail to be cured with the above amount of penicillin therapy. Because of differences in host response, a slight quantity of mucoid discharge sometimes persists for a time after successful therapy. This does not indicate a persistent gonococcal infection, and it usually disappears spontaneously. It may be prolonged by continual stripping of the urethra, and patients should be instructed, therefore, not to strip or "milk down" the urethra except to obtain an exudate for laboratory examinations (and this should be done only in the presence of a medical department representative). Other conditions may co-exist and may simulate gonococcal urethritis after gonorrhea is cured. Such diseases or conditions include nongonococcic urethritis, Reiter's disease, prostatitis, trichomoniasis, chemical or mechanical irritation of the urethra, and these should be looked for in patients who fail to respond clinically to penicillin therapy.

Post-treatment Management

Penicillin is therapeutically effective in syphilis during its incubation stage in doses roughly proportional to the time it has been incubating. When syphilis and gonorrhea have been coincidentally acquired, both diseases may sometimes be cured by the amount of penicillin therapy outlined above. If syphilis in the incubation period is not cured by the therapy for gonorrhea, the development of primary syphilis may be retarded slightly, never over 3 months; however, so-called "masking" of primary syphilis by subcurative doses of penicillin has not been observed either experimentally or clinically. Because the incubation period may be prolonged by penicillin therapy for gonorrhea, the patient should be instructed to report

for a blood test for syphilis at the end of 4 to 6 months following treatment. Furthermore, he should be warned to report promptly if lesions suspicious of being primary or secondary syphilis develop. (Prev. Med. Div., BuMed)

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The Diagnosis and Treatment of Hyperparathyroidism

Hyperparathyroidism is a curable disease, but may be fatal when untreated. It is seldom recognized before it has caused prolonged ill health, and at times the diagnosis is first made at post-mortem examination. Greater awareness of the clinical manifestations of the disorder is essential for earlier and more frequent detection. This article presents an approach to the diagnosis of hyperparathyroidism with particular emphasis on the less classic and less generally appreciated features of the disease.

The original descriptions of hyperparathyroidism emphasized the high blood calcium content and the occurrence of osteitis fibrosa cystica. The frequent renal complications were not appreciated, and it was not realized that in some cases the blood phosphorus concentration is more affected than are the blood calcium levels. Furthermore, the emphasis placed on the skeletal changes served to direct attention from the more numerous cases in which osteitis fibrosa cystica is not present.

The variability of the clinical manifestations of hyperparathyroidism adds to the difficulty in diagnosis. At times the symptoms are so mild that their significance is entirely overlooked. Final establishment of the diagnosis depends on an indirect chemical approach. There is no direct method of assaying parathyroid hormone in the blood, and one must therefore rely on tests which indicate the metabolic changes resulting from an overproduction of the hormone. An understanding of normal and abnormal parathyroid physiology is thus a prerequisite to correct diagnosis.

The major clinical manifestations of hyperparathyroidism are discussed. The symptoms induced by hypercalcemia in this and other diseases have been illustrated and the 3 most common forms of the disease (gastrointestinal, skeletal, and renal) have been discussed. The diagnostic limitations in the laboratory procedures employed in the study of patients with hyperparathyroidism and other medical diseases of bone are reviewed. Brief reference has been made to the surgical aspects of the disease, and a word of caution has been given against the surgical treatment of secondary hyperparathyroidism. The greater clinical significance of a low serum phosphorus in the diagnosis of hyperparathyroidism has been stressed in order to emphasize that a low serum phosphorus and an elevated serum calcium are more important when they occur together than when either is present alone. (Postgraduate Medicine, Oct. 1952, R. W. Schneider)

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Treatment of Acute Leukemia in Children With and Without Folic Acid Antagonists

The administration of folic acid antagonists for the treatment of acute leukemia in children by Farber and his associates gave responses which suggested that the number of temporary remissions was greater than previously reported with other forms of treatment. The effects of Aminopterin and A-methopterin on a series of patients with acute leukemia were compared to case records of those children treated prior to the advent of the folic acid antagonists. The clinical responses were, in general, sufficiently encouraging to suggest that metabolic studies be done to determine why the dysplastic bone marrow and cellular immaturity were temporarily corrected by the administration of the antagonists. The results of the clinical studies are reported and the metabolic findings will be the subject of another report.

A selected group of 48 cases of acute leukemia in children of various ages admitted to the Research and Educational Hospitals of the University of Illinois during the past 20 years is reviewed in detail. These patients were selected on the basis of completeness of data and close personal observation of their clinical course. The cases were observed during the years when a variety of therapeutic agents were employed in the management of the leukemic child. Arsenicals, nitrogen mustard, urethane, x-ray, or radioactive phosphorus were given individually to some of the patients, but as a group these cases can be considered as "preantagonist" cases. The second group of 38 patients was observed from the spring of 1948 through August 1951, and is referred to as the "antagonist-treated" group. At least 3 of the authors' patients survived more than 2 years, 1 of these is now well through his third year of remission.

The natural history of 86 cases of acute leukemia in children is described. Only 2 of these were Negroes. Preschool age children are primarily affected and the average life expectancy is 5.5 months. The folic acid antagonists, Aminopterin and A-methopterin, provided clinical improvement and prolonged life in the majority of cases. Bone marrow remissions were obtained for as long as 30 months. The role of Aminopterin as a folic acid and citrovorum factor antagonist is discussed in respect to the enzymes concerned in protein metabolism associated with cellular maturation. (J. Pediat., Oct. 1952, H. G. Poncher, H. A. Waisman, J. B. Richmond, O. A. Horak, and L. R. Limarzi)

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Intravenous Anesthesia in Major Obstetric and Gynecologic Surgery

The author has thus far accumulated about 1,301 major obstetric and gynecologic cases in which intravenous sodium pentothal anesthesia has been employed. This article reports results of the administration of intravenous anesthesia by continuous method for major obstetric and gynecologic surgery.

The advantages of this method are as follows: (1) There is rapid induction through which psychic shock is minimized. (2) Induction is easy. The patient falls asleep and quietly passes into a stage of surgical anesthesia; there is no coughing, excitement, struggling, or tendency to vomit. (3) Injection is pleasant and there is no fear of subsequent injections. (4) Dosage is easily controlled. (5) Recovery is rapid. (6) Vomiting and distention are absent. (7) Postoperative complications are few or none. (8) Blood pressure is maintained. (9) It is an ideal anesthetic for patients who fear induction of inhalation method. (10) It can be used as a supplemental agent.

Intravenous anesthesia has certain requisites. It must be administered by a properly trained anesthetist. An airway tube and oxygen tank must always be available. Proper technic for venipuncture should be used, with strict asepsis and antisepsis. A freshly prepared solution of agent is important and pure, sterile, distilled water should be used to make the solution.

The indications and contra-indications for sodium pentothal anesthesia should be borne in mind to prevent complications. It should be administered to extremely nervous and apprehensive patients, patients fearful of inhalation anesthesia, patients intolerant to pain of local, region, or spinal, and frail, debilitated patients in whom other methods are contra-indicated. It should not be used in patients with advanced cardiac disease with dyspnea, toxemia, or obstruction of airways.

Intravenous sodium pentothal anesthesia for cesarean sections should not be employed by the average surgeon because of the danger of fetal asphyxia. However, in the hands of the experienced and skillful operator it can be employed with success if the baby is delivered within 5 minutes of the time of the abdominal incision. If cesarean section is performed for any indication in which fetal distress is present because of interference with uteroplacental circulation, as in ablatio placentae, coils of cord around fetus, and placenta previa, sodium pentothal anesthesia is definitely contra-indicated.

It is an ideal anesthetic for gynecologic operations by the vaginal route. For abdominal gynecologic cases sodium pentothal anesthesia does not give proper relaxation and supplementary agents must be employed. However, in the hands of an experienced and skilled surgeon the entire procedure can be done without supplementary anesthesia.

Sodium pentothal is an ideal anesthetic for poor risks, especially when other forms of anesthesia are contra-indicated. It eliminates fear of repeat surgery and is ideal for extremely nervous patients with fear complexes. It can be supplemented with other agents if necessary without danger and is ideal for induction. Nitrous oxide and d-tubarine hydrochloride have been used to supplement intravenous sodium pentothal in abdominal cases when further relaxation was required.

The average dose of 1.5 gm. of sodium pentothal was used. Occasionally 1.75 to 2 gm. were employed. No immediate or postoperative complications were encountered. (Am. J. Surg., Oct. 1952, V. P. Mazzola, N J Mazzola, and L. Pico)

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Succinylcholine: A New Approach to Muscular Relaxation in Anesthesiology

It is generally accepted that the ideal muscle relaxant should have specificity and rapid onset of action, readily controllable intensity, wide margin between muscular relaxation and respiratory arrest and rapid and complete recovery after the cessation of its administration. The agents hitherto employed for the production of muscular relaxation in surgical anesthesia all fell short of the above requirements. Depending on the agent used, 3 to 8 minutes were required for the development of maximal effect. There was more or less marked respiratory depression with all agents, and in a certain percentage of patients adequate muscular relaxation could not be obtained without transient respiratory arrest. Salivation, excessive bronchial secretion, bronchospasm, tachycardia, hypotension, and hypertension were encountered in various combinations with the different muscle relaxants. The duration of action of a single effective intravenous dose varied from 10 to 30 minutes with these agents; an even longer time was occasionally required for the complete restitution of neuromuscular conduction after prolonged administration of fractional doses. Occasionally, profound respiratory depression of long duration could be observed.

Observations made on anesthetized patients with a recently introduced synthetic muscle relaxant, succinylcholine, indicated that this agent, administered in the form of continuous intravenous infusion, approximated most closely the definition of the ideal muscle relaxant.

The observations presented were made on 202 unselected consecutive patients in whom the use of muscle relaxant was indicated. Of these, 79 were males and 123 were females.

After premedication with pentobarbital, atropine, or scopolamine and morphine, patients were anesthetized by the intravenous injection of a 2.5% pentothal sodium solution administered through the rubber sleeve of an intravenous infusion of 5% dextrose started previously. After the depth

of anesthesia progressed to Plane 1 or 2 of Stage III, 10 to 45 mg. of succinylcholine di-iodide was administered intravenously. Forty-five to sixty seconds later the vocal cords were visualized by direct laryngoscopy and sprayed with a 1% pontocaine solution, and an endotracheal tube was inserted. The intubation was usually completed within 1 or 2 minutes from the end of the administration of succinylcholine. A continuous intravenous drip of an 0.2% solution of succinylcholine di-iodide in physiologic saline solution or in 5% dextrose in water was started immediately after intubation through a No. 23 needle also inserted into the rubber sleeve of the intravenous infusion started before the induction of anesthesia. The degree of muscular relaxation required is obtained by regulating the rate of flow of the succinylcholine solution with a "tunnel clamp." From then on the anesthesia was conducted as described previously.

The advantages of succinylcholine as a muscular relaxant in anesthesiology far outweighed its disadvantages. The greater attention required on the part of the anesthesiologist was amply rewarded by the greater flexibility afforded by this agent. Similarly, the complete absence of residual respiratory depression and the lack of side effects more then compensated for the occasionally observed prolonged sleeping time, which was due to the increased quantity of pentothal sodium used.

On the basis of the authors' experience, succinylcholine is the muscle relaxant of choice, especially in debilitated, dehydrated, and aged patients, in whom prolonged postoperative respiratory depression with other agents is most common.

It is highly significant, from both the pharmacologic and clinical points of view, that succinylcholine exerts its desired effect rapidly, is readily controllable, and is easily hydrolyzed into substances that in the dose range employed have no harmful effects. The need for such ultrashort-acting agents in anesthesiology is readily apparent, and it is hoped that the clinical use of succinylcholine will stimulate the search for other agents—for example, barbiturates—with ultrashort activity. (New England J Med., Oct. 16, 1952, F. F. Foldes, P. G. McNall, and J. M. Borrego-Hinojosa)

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How to Get Rid of Radioactive Waste

It is always encouraging when fundamental research comes up with immediately usable information. The California Academy of Sciences, while engaged in an oceanographic survey supported by ONR, discovered that not far off the coast of California the ocean bottom has wide areas of thick, gooey mud. The depth there is around 3,000 feet. This discovery has solved a very practical problem: What to do with the considerable quantities of radioactive waste accumulated from various developmental projects.

The waste can be loaded into steel drums, carried to the muddy-bottom areas, and there dropped overboard. The drums will sink into the mud long before they disintegrate, and the mud will absorb the dangerous radiation. This will avoid the contamination of huge volumes of sea water (and fish), which would occur if the drums disintegrated on a hard-sand or rocky bottom. (Research Reviews, Oct. 1952)

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Complication of Rabies Vaccine Therapy Treated With Corticotropin

Although the complications of rabies vaccine therapy are rare, the physician always keeps them in mind, owing to their danger. These complications are of 2 main types: (1) the local reaction, which is of no importance, and (2) the systemic reaction, which Grinker classifies as myelitic and neuritic. Remlinger describes 3 clinical types of systemic reaction: (1) acute ascending paralysis of the Landry type, with sudden onset, fever, cephalalgia, restlessness, and paralysis, usually fatal in one-third of the cases; (2) dorsolumbar myelitis, with gradual onset, paralysis, and weakness; and (3) neuritic form, with symptoms of peripheral nerve involvement. The last 2 types terminate in complete recovery in 100% of cases.

The main pathologic changes which occur in the complications of antirabies treatment have been described by Bassoe and Grinker as constituting a typical toxic reaction in the ganglion cells, vascular endothelium, and oligodendroglia, consisting in perivascular round-cell infiltration with demyelination and axis-cylinder destruction, the Abbau of destroyed myelin sheaths in the spinal cords, and the degeneration of the mucin-containing cells.

It has been suggested that the systemic reactions seen with antirabies treatment are caused by (1) abortive rabies, (2) infection due to fixed virus, (3) toxins from the rabies virus, (4) toxins from the material used in the manufacture of the vaccine, (5) street virus infection, and (6) anaphylactic reaction. From this report, it is seen that corticotropin had a definite effect on the clinical and pathologic process in a case of paralysis caused by Pasteur treatment. The patient showed great improvement symptomatically. Because the authors did not have specific treatment, acetylsalicylic acid was given pro re nata, and the patient began to use less and less acetylsalicylic acid after corticotropin therapy was instituted. The temperature became normal, and spinal fluid values returned to normal.

It has been demonstrated that corticotropin, as well as cortisone, has an antiallergic action, although the exact mechanism is not yet known; it seems to be at the cellular level, giving protection to the cell against the injurious agent. The adrenal steroids do not seem to interfere with the antigen-antibody reaction but interfere with the fixation to the tissues or with the action of histamine.

In this case, the authors had the opportunity to use corticotropin and observe its effects. It seemed to protect the central nervous system of the patient against complications of rabies vaccine, probably by stopping an allergic reaction. (A. M. A. Arch. Neurol. & Psychiat., Nov. 1952, G. Garrido-Lecca and A. Tola, Lima, Peru)

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Jaw Growth and Tooth Eruption in Their Relation to Space Maintenance

Generally, it is understood that space maintenance refers to a mesiodistal dimension within a dental arch. Thus, in the bicuspid area, it refers to a dimension that is mainly anteroposterior and in the incisor area to a dimension that is mainly mediolateral.

In common usage, space maintenance is concerned principally with the problems of spaces and tooth shifting during the transition from the deciduous to the permanent dentition. In this article the unmodified term "space maintenance" refers to the problems of dental arch length from first molar to first molar. Dental arch length is the mesiodistal arch dimension measured, when the teeth are well aligned, along the line of the dental arch through the proximal contact areas or points and extending around the arch from the first permanent molar on one side of the dental arch to the first permenent molar on the other side of the arch.

The relation between arch length and tooth alignment is obvious. If the arch length from molar to molar is equal to the sum of the mesiodistal diameters of the bicuspid, cuspid, and incisor teeth, these teeth can be well aligned and in contact with each other. If the arch length is less than the sum of the mesiodistal widths of the teeth, the teeth cannot be well aligned but probably will be rotated or crowded. If the arch length is greater than the tooth widths, there probably will be spaces between some or all of the teeth.

The dental arch length that is needed to accommodate properly a person's succedaneous teeth is determined by the mesiodistal dimensions of his teeth. The dental arch length that exists is determined primarily by the anteroposterior position of the first permanent molars, the anteroposterior position of the anterior teeth, and the lateral locations of the cuspids, bicuspids, and molars. Underlying these immediate determinants of arch length are all of the factors that bring these teeth into their positions. The positions that teeth achieve in the dental arches depend on (1) jaw growth, which alters the relative positions of teeth, (2) migration of the developing teeth within the jaws, (3) eruption of teeth from their intraosseous locations to their positions within the oral cavity, and (4) the interaction of forces on the alveolar processes and teeth during and after their

eruption. Because these relationships exist, it is evident that jaw growth and tooth eruption are involved in any consideration of the development and maintenance of dental arch length.

Although much progress toward understanding jaw growth and tooth eruption has been made in recent years, much remains to be learned about the variations in these phenomena in individual children. Hence the relationships of jaw growth and tooth eruption to the problem of space maintenence cannot be defined with absolute certainty. Nevertheless, a number of concepts have emerged gradually from the many essays and research reports on these topics. The following 8 concepts have come to be widely accepted as axioms or guiding principles: Principle I. —The gaining of arch length to accommodate the deciduous dentition is rarely a problem. Principle II. —Spaces between well-aligned deciduous teeth usually indicate that jaw growth has provided more than enough space for the deciduous teeth, that is, more than enough arch length from the distal surface of the second deciduous molar on one side to the distal surface of the second deciduous molar on the other side. This extra arch length is usually needed when the permanent teeth erupt. Principle III. —After the eruption of the deciduous dentition, jaw growth does not provide additional anteroposterior space in the bicuspid region. There appears to be no evidence to disprove this concept. Principle IV. —Arch width in the cuspid region increases during childhood, and thereby the dental arch length is increased. A number of investigators have measured arch width from cuspid to cuspid on models of children. The general conclusion from an evaluation of their data to discover the central tendency is that intercuspid width increases a few millimeters, especially during the period of permanent incisor eruption. The few reports that present serial data for individuals, however, demonstrate considerable variation from child to child. Principle 5. —The first molars move laterally very little after they have reached occlusion and therefore contribute negligibly to any increase in arch length. Several studies reporting average changes support this idea. Naturally, any individual variations are masked by the averages. Principle 6. —The second deciduous molars appear to serve as anteroposterior guides for erupting first permanent molars. A review of the pattern of relationships of the second deciduous molar and the first permanent molar during their growth and eruption strongly suggests this influence. Principle 7. —First permanent molars move mesially during the transition to the permanent dentition. Principle 8. —Permanent incisors erupt with a greater labial inclination than that of their predecessors, and thereby arch length in increased.

An examination of these 8 generally accepted principles relating jaw growth and tooth eruption to space maintenance shows that all but 1 of them may vary from child to child. Some of these concepts relate to changes that are likely to increase arch length and others to changes that are likely to decrease arch length. These generalizations provide a background for intelligent observation of a child's growth changes although available sta-

tistics do not provide dependable bases for predicting the outcome of any one child's developing occlusion. Rather, all factors must be evaluated according to the conditions present in each child. This evaluation must include appraisal of the many associated influences that may change either the direction or the amount of each factor's effect on arch length. Analysis of a child's space maintenance problem is a highly individualized problem, frequently requiring painstaking assemblage and interpretation of information bearing on the possible and probable changes in the positions of the teeth.

Jaw growth and tooth eruption are two of the influences that must be considered in their association with all the component forces that surround the teeth during and after eruption. In one child these forces may tend to move teeth in favorable directions, in another child in unfavorable directions; and in still another child they may be so nearly in balance that they produce relative stability of tooth positions.

The recognition and interpretation of signs and symptoms that provide clues to the conditions present in each child and the probable future of those conditions is the difficult task of a dentist who wishes to formulate the best possible treatment plan for his patients. (J. Am. Dent. A., Nov. 1952, T. D. Speidel)

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A New Technique in Primary Tendon Repair

There are few procedures in clinical surgery which result in as many disappointments as primary tendon repair. This is particularly true when one is dealing with tendons which are severed within the flexor digital sheath. Recently more attention has been directed to this problem, and several age-old principles have been re-emphasized as the basis of success in the usual tendon repair. Accurate diagnosis and early treatment, aseptic technique, gentle handling of the tissues, and thorough follow-up care are considered essential in successful tendon surgery.

In order to aid in applying the basic principles of tendon repair, most surgeons have attempted to use a suture which is both simple and atraumatic. Mason points out that the ideal tendon suture should have a firm anchorage in the tendon, produce a minimum of disruption, avoid burdening the tissues with a great amount of suture material, leave the opposed tendon ends free of suture material, and should not leave knots between the stumps. Bunnell states that foreign body or suture material should be reduced to a minimum, suture should not strangle tissue, and a core stitch is preferable to a surface stitch.

A tendon suture is presented which seems to very nearly conform to the standards of the ideal. This suture as previously described was devised by Dr. Med. Fritz Lengemann and technically perfected in this country.

This barb wire tendon suture consists of a 12-inch strand of braided tantalum wire with a straight needle on the distal end and a curved needle on the proximal end. At approximately 8 inches from the straight needle there is a V-shaped steel barb which is applied in such a way that the prongs point toward the straight needle.

This technique in the use of this suture is extremely simple. The straight needle is threaded through the center of the proximal tendon segment until the barb is engaged, starting the suture approximately 1/2 inch from the divided end. The straight needle is then inserted through the mid-portion of the distal segment and brought out through the skin. Adequate tension is placed on the distal portion of the suture and the severed ends easily approximated. This tension is maintained by means of a button with a matchstick or lead shot. The proximal portion of the tendon suture is then threaded through the skin by means of the curved needle and loosely applied over a button. The suture in place can readily be seen by roentgenography. Following the healing of the severed tendon, the suture is freed from the distal button and removed by gently pulling on the proximal button.

The applicability of this suture to tendons of various sizes and shapes has been tested. In 14 consecutive unselected cases, representing 21 severed tendons, the suture has been applied with ease to extensor tendons as well as flexor tendons within and without the flexor digital sheath. (Surg., Gynec. and Obst., Nov. 1952, E. R. Jennings, A. R. Mansberger, Jr., E. P. Smith, Jr., and G. H. Yeager)

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Lobectomy for Pulmonary Tuberculosis

The author's concept of lobectomy in the treatment of pulmonary tuberculosis embraces 4 principles. First, tuberculosis is a generalized disease usually manifested clinically in the lungs and lobectomy does not, in most instances, imply that the total area of active disease is extirpated. Second, an interval sufficient to permit resolution of the new reversible lesions before lobectomy is advisable. Third, the removal of tuberculous lung tissue by upper lobectomy should be preceded, accompanied, or followed by an upper phase 5-rib thoracoplasty. Fourth, the period of hospitalization following lobectomy for active pulmonary tuberculosis is dependent upon the extent and nature of the disease. Preferable, a minimum period is 1 year and the acceptance of such a program by the patient prior to operation has proved most satisfactory.

The time required for the resolution of new reversible lesions is variable and dependent upon several factors not thoroughly understood. Certain antibiotics, particularly streptomycin and para-aminosalicylic acid, aid in the healing of such lesions and constitute the most valuable adjunct yet

available in the surgical management of pulmonary tuberculosis. The combination of streptomycin in a 2-gm. dose every third day with a daily dose of 12 gm. of para-aminosalicylic acid prevents the development of resistance of the patient's organisms to streptomycin in approximately 90% of adults. Streptomycin has been used in 98.2% of the patients in this study. Para-aminosalicylic acid has been regularly administered with streptomycin for the past 2-1/2 years. This permits its use for the presurgical preparation and the retention of its protective effectiveness against dissemination of the disease in the postoperative period. In the presence of known active disease the author believes that 6 to 12 months of properly supervised therapy is generally adequate prior to lobectomy. The performance of thoracoplasty prior to lobectomy is preferable, and it is the author's practice to perform a first stage thoracoplasty, i. e., removal of the upper 3 ribs 3 weeks prior to lobectomy and resect long segments of the fourth and fifth ribs at the time of upper lobectomy. Chest wall deformity following a 5-rib upper-phase thoracoplasty and lobectomy is not noticeable. An upper lobectomy and a 5-rib thoracoplasty appreciably conserves pulmonary function when compared to the usual multiple-stage thoracoplasty removing 7, 8, or more ribs. Lobectomy is selective. It immediately eradicates the cavitary area and the major portion of the disease, thereby decreasing repeated endogenous reinfection, which aids healing of the remaining infected lung tissue. It is, in association with thoracoplasty, preferable to selective artificial pneumothorax in "irreversible and irreparable destruction of lung substance."

In the absence of recognizable surgical contra-indications the following were the indications for lobectomy: 1. Tuberculoma, not suitable for segmental resection. 2. Persistent cavitary disease involving principally 1 lobe i. e., after 6 to 12 months of properly supervised bed rest including antibiotic therapy or 6 months post-thoracoplasty if no other cause for positive sputum is evident. Bronchostenosis of the lobe bronchus further increases the indication for lobectomy. 3. Persistent chronic active non-cavitary tuberculous lesions involving principally 1 lobe. This group presents wide individual variation and divergent opinions among competent phthisiologists and surgeons. In the author's opinion it is the group which, until more effective medicament is available, will become an increasing indication for lobectomy. 4. Certain suspected but unproved chronic tuberculous lesions confined principally to 1 lobe, exclusive of tuberculoma.

The low mortality and relatively early results were impressive in the use of lobectomy in the treatment of 219 consecutive tuberculous patients. The goal of long-term results is not available, but the present trend indicates that it will surpass most expectations. Lobectomy is the safest, surest, and quickest method of achieving arrest of the disease when the indications and concepts described are followed and with the aid of proper rest and antibiotic therapy. (Ann. Surg., Nov. 1952, COL. J. H. Forsee, MC, USA)

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Combined Daily Terramycin and Intermittent Streptomycin in the Treatment of Pulmonary Tuberculosis

With the knowledge that terramycin exerts in vitro and in vivo antituberculous activity, a pilot study using terramycin, alone and in combination with streptomycin, for the treatment of pulmonary tuberculosis was carried out at Fitzsimons Army Hospital during 1950. Because the study suggested that terramycin, like para-aminosalicylic acid, may delay the emergence of bacterial resistance to streptomycin, further trial with this drug in the treatment of tuberculosis seemed justified.

Seventy patients with active pulmonary tuberculosis were selected by a process of randomization from patients meeting the following criteria: (1) no previous antituberculous drug therapy, (2) bacteriologically proved disease (by culture), and (3) disease of greater than minimal extent. Sixty-six patients received 5 gm. of terramycin hydrochloride daily (1.25 gm. orally, 4 times a day) and 2 gm. of streptomycin sulfate every third day (1 gm. intramuscularly, twice a day), both drugs for a period of 120 days. Because 4 patients did not receive this amount of terramycin, they were not included in the statistical analyses. During the period of observation, the patients were on a strict rest regimen. In 3 of the 4 patients not included the clinical, roentgenographic, and bacteriologic response was favorable. The fourth patient, who was able to take terramycin only 50% of the time, also showed clinical and roentgenographic improvement, but yielded tubercle bacilli resistant to streptomycin after 3 months of chemotherapy.

With the exception of weight gain, the clinical improvement obtained was comparable to that observed with other combined drug regimens using streptomycin. It was believed that the weight loss was caused by the anorexia noted during the period of terramycin administration.

The roentgenographic response in this relatively small series was most favorable. The degree of improvement, both the total (97.0%) and the moderate and marked improvement (50%), is slightly better than that seen in any of the 120-day combined drug regimens employed at Fitzsimons Army Hospital during the past 4 years. This is even more impressive when it is remembered that only 7.6% of the patients had new, resolving lesions at the start of therapy.

The high incidence (77.3%) of patients whose sputum became negative for tubercle bacilli during chemotherapy is additional evidence of the therapeutic effectiveness of this regimen. The most significant observation in this study was the lack of development of bacterial resistance to either drug in all 25 patients able to tolerate the full dosage of terramycin and from whom positive cultures could be obtained on or after the end of chemotherapy. Using the same laboratory methods and criteria, an incidence of 31% bacterial resistance was encountered when 2 gm. of streptomycin was given every third day for 120 days without an adjuvant drug.

Although frequently irritating to the gastrointestinal tract, a dose of 5 gm. of terramycin daily can be taken by virtually all patients with a minimum of difficulty. A patient who was made to understand the seriousness of his disease and the importance of the drug therapy in his overall treatment seemed to be better able to tolerate terramycin. This observation was made so frequently that it could not be overlooked as a significant factor. (Am. Rev. Tuberc., Nov. 1952, F. L. Miller, J. H. Sands, R. Walker, W. E. Dye, and C. W. Tempel)

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Factors in the Production of Coronary Artery Disease

Much has been written during the past 3 years on the possible relationship between errors in lipid metabolism and the progression of atherosclerosis. Abnormalities in the cholesterol-phospholipid ratio and in the lipoprotein pattern of the blood have been incriminated, particularly in the pathogenesis of the disease.

It should be appreciated that coronary artery disease is not a pathologic entity but a clinical term for a number of symptom complexes which result from myocardial ischemia. Admittedly, at least 90% of cases of myocardial ischemia are caused by coronary sclerosis or its sequelae, but the qualification "or its sequelae" is important. Uncomplicated and progressive coronary atherosclerosis, resulting from the simple deposition of lipid materials over long periods, is not the common immediate cause of coronary artery disease. It is well known to pathologists that severe grades of coronary atherosclerosis are not incompatible with good health and normal heart action, while lesser grades of disease may be associated with occlusive phenomena. The classical studies of Blumgart and Schlesinger have shown that the gradual reduction of the coronary lumen to a pinpoint size does not necessarily result in symptoms since it is compensated for by the opening up of a collateral circulation which is adequate for the ordinary activities of life. If these ordinary activities are exceeded, the anginal syndrome or acute coronary insufficiency may of course result; but this is not the usual way in which coronary artery disease is produced. It is usually precipitated by structural changes in atherosclerotic plaques, changes which have no apparent relation to lipid metabolism at the time of the catastrophe, but are more concerned with extraneous factors like coronary pressure, coronary blood flow, and capillary fragility. Thus, the difference between an individual with clinically-evident coronary artery disease and a so-called normal individual lies, not so much in his grade of coronary atherosclerosis, as in the presence of these extraneous factors which precipitate occlusion.

The evidence reviewed in this article suggests strongly that other factors besides atherosclerosis play a major part in the production of

coronary artery disease. All of these extraneous factors have probably not yet been elucidated, but an important one has: the rupture of capillaries within atherosclerotic plaques seems to play a major role in determining whether or not an individual with coronary sclerosis will present signs and symptoms of myocardial ischemia. It follows that these signs and symptoms cannot be accepted as a measure of the severity of the atherosclerotic process, per se, in the coronary circulation. This conclusion has an important application to current investigations on the relation of errors in lipid metabolism to atherosclerosis. To use coronary artery disease as a criterion in these studies means that not only is atherosclerosis measured but these extraneous factors as well. Obviously, a more critical method of assessment is needed in this field of research. In the author's opinion, this can be done only by comparing serial blood lipid levels obtained during life with an accurate estimate of the severity of atherosclerosis as revealed at autopsy. In carrying out an assessment of this type, 2 points must be borne in mind. Because atherosclerosis is a disease which may take years to develop, and may persist for some time after the causative agent has ceased to act, the serial determinations of the blood lipids should be made over long periods. And it would be helpful if more accurate technics could be devised for estimating the severity of the disease at autopsy.

However, future research on atherosclerosis should not be confined to the chemistry of the blood lipids. It should include studies on arteries—on the tissues which are actually affected by the disease. In this regard, the causes of capillary rupture in atherosclerotic plaques demand attention. Statistical studies carried out recently by Morris suggest that the incidence of coronary occlusion in England has increased during the past 40 years while the over-all severity of coronary atherosclerosis for the same period has declined. If the thesis that coronary occlusion is usually the result of extraneous factors which lead to the rupture of capillaries in the walls of arteries, and is not usually due to coronary sclerosis, per se, is accepted, there is no inconsistency in this interesting report from England. Indeed, until atherosclerosis is completely eradicated from the human race, or is so inhibited that it reaches no more than slight proportions, the complications which have been described in this article will remain: atherosclerotic plaques of any size will continue to become vascularized, intimal capillaries will continue to rupture, and the sequelae of intimal hemorrhage will continue to occur. In the circumstance, it seems reasonable to suggest that the causes of capillary rupture in these locations deserve more attention than has been given them in the past. (Circulation, Nov. 1952, J. C. Paterson)

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The printing of this publication has been approved by the Director of the Bureau of the Budget, June 23, 1952.

Coxsackie Virus Antibodies in a Community

Previous reports from this laboratory (National Microbiological Institute, PHS, Bethesda, Md.) have described the isolation of multiple immunologic types of the so-called group A Coxsackie viruses from cases of herpangina, a mild but specific febrile illness. Evidence was presented which established these viruses as the probable etiologic agents of herpangina. Virus was recovered from 90% of cases of illness which were distributed among several small residential communities and in outpatient clinic patients during a period of 15 months.

Epidemiologic studies involving the examination in a standardized manner of fecal specimens collected periodically from most persons in one community showed that group A viruses occurred predominantly among children during the summer months. These viruses occurred in all cases of herpangina, in many of the household associates of such cases, in many of the neighborhood contacts of cases, and in very few other persons in the community.

During the course of these studies, blood serum specimens were collected from a sample of the population in this community in December, 1949, following an outbreak of herpangina the previous August and September. A second serum specimen was collected in November and December, 1950, from many of the same persons following another outbreak of herpangina in the summer of 1950. Periodic surveillance of the community was maintained for the presence of group A Coxsackie viruses and illness in the period between the bleedings and the occurrence of virus, and illness in the entire community was determined with reasonable accuracy at these times. A study of the occurrence and development of antibodies in these serums was undertaken in order to test hypotheses postulated on previous observations which involved only the isolation of viruses. Some of these hypotheses were that age and household (or neighborhood) exposure are important factors in determining infection and disease. One aspect of this study was, therefore, designed to show whether the presence or absence of previously existing antibodies in the blood serums of persons might explain the age distribution of virus and might influence the spread of infection among persons exposed to herpangina. Previous preliminary data indicated that human blood serums usually contained a multiplicity of antibodies so the entire group under study was examined for antibodies against several different viruses in order to determine the extent and prevalence of past infection with these agents.

A neutralization test, found to be highly useful in studies of human antibody response to Coxsackie virus infections, was employed throughout. A previous study comparing the neutralization and complement-fixation techniques as indices of previous infection in man with the group A Coxsackie viruses showed that the latter resulted in cross reactions with heterotypic group A antigens which were not confirmed by neutralization tests or by

evidence of resistance during subsequent exposure to virus. Similar observations have been made recently by Kraft and Melnick. It was concluded, therefore, that the neutralization test provided not only a more accurate reflection of previous infections with these viruses but also defined to some extent actual resistance to specific immunologic types of group A Coxsackie virus.

Infection with group A Coxsackie (herpangina) viruses results in the development of type-specific neutralizing antibodies. This is, therefore, the basis for employment of the neutralization test in the serologic surveys described in this study. Studies in the neutralization test of blood serums collected from persons in a single community a year apart before and after an outbreak of herpangina showed the following: 1. Sex is unimportant in influencing the possession of neutralizing antibodies. The influence of race could not be determined in the all-white population studied, and serum specimens were collected on insufficient occasions to determine the influence of season. 2. The number of persons having antibodies increased with age. A larger percentage of adults than children had serum antibodies against each virus type and adults possessed antibodies against a greater number of types than children did. These observations, plus the demonstration that in households where virus was isolated those persons with pre-existing antibodies did not become infected, offers an explanation for the age distribution of herpangina as well as that of the occurrence of virus. 3. The presence in many adults of antibodies to most of the virus types in this study indicates that these viruses are ubiquitous and cause infection frequently in man. 4. The neutralizing antibodies persist for a year, and probably longer, with essentially unchanged titer. 5. Effective exposure of susceptible individuals to infected persons, especially within the households, plus serologic evidence of susceptibility, determines the acquisition of infection. Thus a herpangina virus introduced into an area of the community with a high percentage of susceptible individuals spread within families and only among families having frequent contact with each other and produced infection only in those persons who did not possess neutralizing antibodies. Although other persons in households somewhat removed geographically within the community were equally susceptible, as judged by their lack of antibodies, virus was never recovered from them and they did not develop antibodies following the 1950 outbreak of herpangina; the best explanation of this is their lack of effective contact with known infected persons. 6. Occasional individuals (all adults) without demonstrable antibodies at the levels tested, who lived in virus-infected households, did not become infected as measured by excretion of virus and did not develop antibodies. 7. Studies of the prevalence of neutralizing antibodies in a community provide substantiating evidence for the hypotheses (expressed previously), that age and effective exposure particularly within households to infected individuals largely govern the spread of group A Coxsackie virus infections in man. (Am. J. Hyg., Nov. 1952, E. A. Beeman, R. M. Cole, and R. J. Huebner)

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From The Note Book

1. Lieutenant Leo A. Jachowski, Jr., MSC, USN, of the Naval Medical Research Institute, National Naval Medical Center, Bethesda, Md., was honored by the American Society of Tropical Medicine and Hygiene by being presented with the Bailey K. Ashford Award in Tropical Medicine at the meetings of the society on November 14 at Galveston, Tex. This award was established in 1939 by the American Society of Tropical Medicine, with the cooperation of Eli Lilly Company. Its purpose is to encourage younger investigators in the field, and to give recognition to those who have made significant contributions to research and have demonstrated exceptional ability, independence of thought, and originality. The award was given to Lt. Jachowski primarily in recognition of his more recent work in American Samoa, on the epidemiology and control of filariasis. (TIO, BuMed)

2. The Reserve Consultants to the Navy's Bureau of Medicine and Surgery met November 14, 1952, at the National Naval Medical Center, Bethesda, Md. The Reserve Consultants, who are appointed by the Surgeon General of the Navy, meet from time to time to advise the Surgeon General on matters pertaining to the Graduate Training Program of the Navy Medical Department which is designed to provide training for Navy physicians and dentists to meet the high professional standards set by the various American Boards. At this meeting, in addition to the consideration of problems affecting professional training, the board reviewed specialty training programs and the status of consultants to naval hospitals and other advisory duties. Chairman of the meeting was Winchell McK. Craig, M. D., of the Mayo Clinic. (TIO, BuMed)

3. Pulmonary embolism continues to be a major problem despite early ambulation and prophylactic measures. In 1946 it was responsible for 42% of all deaths on the urologic service of the Henry Ford Hospital. Following concentration on the early recognition of phlebothrombosis in the lower extremities and on prompt institution of appropriate therapy, there have been no deaths from pulmonary embolism among urologic patients for 31 months. (J. Urol., Nov. 1952, O. S. Culp, J. Barron, and J. K. Ormond)

4. In the treatment of cancer of the cervix uteri the Okabayashi operation was used in 333 cases. This operation, which is an extensive radical hysterectomy with complete pelvic lymphadenectomy followed by postoperative irradiation is definitely more effective than radiation treatment alone in early cases. (Surg., Gynec., & Obst., Nov. 1952, H. Yagi, Okayama, Japan)

5. No immediate postpartum patient should be returned to her room or quarters until all bleeding has been controlled, excessive blood loss has been replaced, her pulse is below 100 beats per minute, and her blood pressure is adequate. (The Modern Hospital, Nov. 1952, N. F. Miller)

6. The Canadian Paraplegic Association and the Toronto Prosthetic Service have developed many appliances for quadriplegic patients or those with disabilities in the upper extremities paralleling quadriplegia. These appliances are discussed and illustrated in Treatment Services Bulletin, Department of Veterans Affairs, Ottawa, Ont., Canada, Oct. 1952, A. T. Jousse and E. A. Weir.

7. The Public Health Service has issued a bulletin designed for the use of health facilities in securing products and materials under the controlled materials plan. It is intended as a guide to the appropriate procedures rather than as a complete summary of procedures and requirements. Copies of Bulletins, Forms, and Regulations may be obtained from the Division of Civilian Health Requirements, Public Health Service, Federal Security Agency, Washington, D. C. (F. S. A., P. H. S.)

8. A review of the literature and the addition of 15 new cases of cystosarcoma phyllodes of the breast appears in Annals of Surgery, Nov. 1952, H. E. Stephenson, Jr., S. Gross, S. L. Gumport, and H. W. Meyer.

9. The Bureau's educational exhibit "A Resume of Optometric Sciences in the U. S. Navy" was displayed at the Rutgers University's Second Annual Conference on Occupational Vision, November 13-14, at Atlantic City, N. J. This conference was called by Rutgers University and the State University of New Jersey for the purpose of continuing the work of promoting conservation of vision, protection of eyes against injury, and aiding and increasing the efficiency, health, and welfare of the industrial workers of the United States. (TIO, BuMed)

10. The U. S. Naval Correspondence Course Center announces the release of a new Officer Correspondence Course titled, Shipboard Communications, NavPers 10918. The course is based upon extensive communication experience gained aboard a hypothetical aircraft carrier, and thus presents practical problems which must be met aboard a large ship of the fleet. Responsibilities in organization, and problems of personnel administration are also covered in this course because communications officers are expected to be thoroughly familiar with all shipboard duties. Reservists will gain 20 promotion or retirement points for the successful completion of this 10-assignment course.

11. The properties and clinical application of radioactive colloidal gold are described in the management of selected cases with recurrent pleural effusions or ascites due to malignant neoplasms. (New England J. Med., 30 Oct. 1952, R. G. Rose, M. P. Osborne, and W. B. Stevens)

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Communicable Disease Control

"The Control of Communicable Diseases of Man," is a pamphlet published by the American Public Health Association and approved in principle by the Surgeons General of the Army, Navy, and Air Force for definition of accepted communicable disease procedures where specific instructions are omitted in official Navy publications.

This pamphlet is a compendium of information concerning nearly all the communicable diseases in sporadic, endemic, or epidemic form that are likely to be met in naval medical practice ashore and afloat. It is particularly valuable as a guide for emergency action upon the occurrence or threat of an epidemic.

This publication should be in the medical library of every activity, ship, station, or unit, having medical officers or Hospital Corpsmen on independent duty. Any unit or activity which does not have immediate access to a copy of the Seventh Edition, 1950, should obtain one by a request to Commanding Officer, U. S. Naval Supply Depot, Scotia 2, N Y. (Prev. Med. Div., BuMed)

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BUMED INSTRUCTION 6470.2 29 Oct 1952

From: Chief, Bureau of Medicine and Surgery
To: All Stations

Subj: Air and breath samples for radon content; collection and shipping of

Ref: (a) NAVMED-P-1325, Radiological Safety Regulations

1. This directive promulgates instructions for the collection of air and breath samples for radon content from personnel who work with radium salts in any form wherein ingestion or inhalation of radon are possible; instructs all activities in the procedures for shipping such samples to the Radon Testing Laboratory, National Bureau of Standards; and indicates when radon air and breath samples should be collected. BuMed C/L 50-88 and 51-1 are cancelled.

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BUMED INSTRUCTION 11014.1 30 Oct 1952

From: Chief, Bureau of Medicine and Surgery
To: Commanding Officers, National Naval Medical Center and Naval Hospitals (Continental)

Subj: Civil service maintenance forces; utilization of

Ref: (a) Department of Defense Directive Number 1135.2 of 5 Aug 1952

1. This instruction promulgates the policy of the Department of Defense relative to the utilization of civil service maintenance forces for maintenance, repair, alterations, and new construction of real property at addressed activities. BuMed C/L 45-175 is cancelled.

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BUMED INSTRUCTION 5215.4 30 Oct 1952

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations

Subj: Manual of the Medical Department, U. S. Navy (NAVMED-P-117)

1. This directive promulgates instructions concerning the Manual of the Medical Department relative to (a) command responsibility, (b) distribution policy, (c) return of surplus copies; and (d) replacement of defective binders. BuMed C/L No. 50-23 and 51-105 are cancelled.

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BUMED INSTRUCTION 6120.2 4 Nov 1952

From: Chief, Bureau of Medicine and Surgery
Chief of Naval Personnel
To: All Ships and Stations Having Medical and/or Dental Officers

Subj: Physical qualifications of NROTC candidates; corrective measures to improve procedures

Ref: (a) Ch. 15, ManMedDept

Encl: (1) Information Brochure for Medical and Dental Officers Examining NROTC Applicants

1. This instruction and enclosure is promulgated for guidance of medical and dental officers in the physical examinations and physical qualifications of NROTC candidates. BuMed C/L 51-86 is cancelled.

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BUMED INSTRUCTION 6150.3 4 Nov 1952

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations Having Medical/Dental Personnel

Subj: Health Records; cross-servicing of within the Armed Services

1. This instruction provides for the reciprocal servicing of Health Records within the Armed Services. Direct interservice care of these records offers a practicable approach toward improved and expedient maintenance whereby considerable duplication and record transcription may be eliminated.

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BUMED INSTRUCTION 6230.1 5 Nov 1952

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations

Subj: Immunization requirements and procedures

Encl: (1) Joint Army-Navy-Air Force directive concerning subject
(2) Check List of countries by areas

1. This instruction promulgates immunization requirements and procedures to be followed in the immunization program of the U. S. Navy. SR 40-230-1, NAVMED P-1340, AFR 160-102 of 8 Oct 1951 and BuMed C/L 49-127, 50-37, and 52-42 are cancelled.

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BUMED INSTRUCTION 7303.1 12 Nov 1952

From: Chief, Bureau of Medicine and Surgery
To: All Stations

Subj: Allotment reporting under the appropriation, Medical Care, Navy

Ref: (a) NAVCOMP INSTRUCTION 7303.1 of 14 May 1952
(b) BuMed C/L 52-54
(c) BuMed C/L 51-96

1. This instruction informs addressees of the reports required on allotments under appropriation, Medical Care, Navy.

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DEPARTMENT OF THE NAVY
BUREAU OF MEDICINE AND SURGERY
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OFFICIAL BUSINESS

Permit No. 1048

PENALTY FOR PRIVATE USE TO AVOID
PAYMENT OF POSTAGE, $300